



JAMAICA.

NOVEMBER 16, 1883.

No. 34.

WEATHER REPORT

FOR THE MONTH OF

OCTOBER, 1883.

QC

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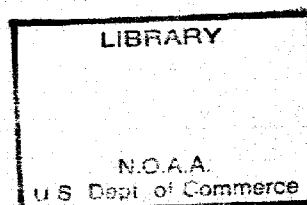
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1883

[Oct. - Dec.]

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JAMAICA:

GOVERNMENT PRINTING AND STATIONERY ESTABLISHMENT, 79 DUKE STREET, KINGSTON

1883.

National Oceanic and Atmospheric Administration

Climate Database Modernization Program

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March 28, 2002

METEOROLOGICAL RESULTS FOR OCTOBER, 1883.

KINGSTON:—

	7 a.m.	3 p.m.	11 p.m.	Mean.
	<i>in.</i>	<i>in.</i>	<i>in.</i>	<i>in.</i>
Barometric pressure ...	29.974	29.905	29.980	29.953
Temperature of the air ...	75° 9	83° 3	75° 3	78° 2
Dew-point ...	71.7	74.9	72.0	72.9
Humidity ...	87	76	89	84
Maximum Temp. ...				87° 7
Minimum Temp. ...				72° 9
Range of Temp. ...				14° 8
Minimum Temp. on Grass ...				68° 3
Direction of the Wind ...				S. E.
Velocity of Wind in Miles per hour ...				3.1
Percentage of Cloud ...				71

Total Rainfall—4.46 inches.

Average Weather:—Cloudy, with light "seasons."

The highest temperature was 90° 3 recorded on the 4th; the lowest was 70° 8. recorded on the 8th; the extreme range was therefore 19° 5. The lowest temperature on the grass was 65° 1 recorded on the 31st.

CINCHONA PLANTATION:—

Barometric Pressure	7 a.m.	...	25.253
"	3 p.m.	...	25.221
Temperature of the air	7 a.m.	...	62° 6
"	3 p.m.	...	64.3
Dew-point	7 a.m.	...	57.7
"	3 p.m.	...	62.5
Maximum Temperature		...	68.6
Minimum Temperature		...	59.4
Range of Temperature		...	9.2
Direction of the Wind		...	E.
Velocity of Wind in Miles per hour		...	3.4
Temperature 6 feet under ground		...	64° 5

NOTE.—The Barometric pressure is the reading of the Barometer corrected for instrumental error and reduced to 32°, that of Kingston being further reduced to the sea-level. The Thermometers are similarly exposed at the two stations; their readings have all been corrected. The following are the elevations of these stations above the sea-level:—

Kingston (Rae Town)	5 feet
Cinchona Plantation	4,850 "

At New Haven Gap (in the Blue Mountain Range, elevation about 5,600 feet) the mean maximum and minimum temperatures were 72° 3 and 55° 3 respectively.

At King's House (in the plains of Liguanea, elevation about 400 feet) the mean maximum and minimum temperatures were 89° 7 and 70° 3 respectively.

THE HEALTH OF KINGSTON though still about the average for October, was not so good as for the two preceding months, the death-rate being 26.7 per thousand. There were 18 deaths from Lung-disease, showing a slight increase since September in spite of favorable Meteorological conditions; the same conditions continue for November. There were 17 deaths during October from Infantile diseases (not otherwise specified); and this number will probably be increased for November.

THE RAINFALL FOR OCTOBER, 1883.

The first columns contain all the Rainfall returns sent in for publication up to the date of this report; the second columns contain the corresponding average Rainfall according to the Tables published in October 1883, as Nos. 31 and 33 of the present series of reports. In obtaining the mean Rainfall for the month, from the numbers in the first columns, only those stations are considered for which the average Rainfall has been given in the second columns, so that the results of the two columns are directly comparable. These results are more clearly shown in the Comparative Table at the end of these Rainfall returns.

NORTH-EASTERN DIVISION.

		OCTOBER.	
		1883.	Average.
		In.	In.
Morant Point L. H.	St. Thomas	...	...
Hordley	...	13.81	...
Holland	...	16.09	...
Leith Hall	...	...	...
Potosi	...	...	...
Boston	Portland	10.50	...
Port Antonio	...	8.51	...
Spring Garden	...	4.64	...
Chepstow	...	3.52	...
Woodstock	...	...	...
Cinchona Plantation	St. Andrew	8.82	...
New Haven Gap	...	12.06	...
Newton	...	6.96	...
Twecdside	...	...	...
Stony Hill	...	14.80	15.60
Castleton Gardens	St. Mary	20.21	12.49
Dover	...	...	...
Annotto Bay	...	4.47	...
Water Valley	...	...	...
Quebec	...	...	...
Port Maria	...	5.76	...
New Ramble	...	3.66	7.08
Gayle	...	...	...
Llanrunny	...	...	...
Goshen	...	...	...
Bio Hoe	St. Ann	5.49	...
Unity Valley	...	6.67	7.85
Albion	...	7.24	7.38
Bradfield	...	5.46	7.67
Drax Hall	...	6.42	7.30
Seville	...	5.05	...
Richmond Estate	...	6.49	...
Llandoverly	...	5.24	...
Mean		9.21	9.34

NORTHERN DIVISION.

		OCTOBER.	
		1883.	Average.
		In.	In.
Lillyfield	St. Ann	6.00	...
Home Castle	...	9.75	...
Richmond Pen	...	3.23	...
Colchis Pen	Trelawny	9.50	...
Mahogany Hall	...	5.34	5.02
Hopewell	...	6.00	6.08
Brampton Bryan	...	5.10	5.28
Bryan Castle	...	2.72	5.18
Nightingale Grove	...	4.15	...
Braco	...	3.94	4.81
Arcadia	...	3.28	...
Harmony Hall	...	3.66	4.14
Lancaster	...	3.07	5.16
Vale Royal	...	4.77	5.91
Hyde Hall	...	5.82	...
Hyde	...	6.10	7.59
Swanswick	...	5.39	...
Long Pond	...	4.46	...
Georgia	...	4.00	5.29
Steelfield	...	4.01	5.98
Etingdon	...	4.16	...
Oxford	...	5.51	...
Cambridge	...	6.25	...
Spring	...	5.44	...
Lottery	...	5.69	6.12
Pembroke	...	7.12	...
Falmouth	...	...	...
Holland Pen	...	3.47	...
Golden Grove	...	8.20	6.66
Fontabelle	...	8.65	...
Green Park	...	...	...
Tilston	...	4.31	6.69

NORTHERN DIVISION *continued.*

		OCTOBER.	
		1883.	Average.
		In.	In.
Orange Valley	Trelawny	2.95	5.31
Kent	...	3.15	...
Dundee	...	2.89	5.70
Gales Valley	...	4.60	7.43
Hampden	St. James	4.86	...
Greenwood	...	3.67	...
Lima	...	...	...
Content	...	...	...
Gullsbro'	...	4.30	...
Spring Vale	...	...	...
Latium	...	...	...
Success	...	...	...
Cinnamon Hill	...	3.47	...
Rose Hall	...	4.33	...
Running Gut	...	3.94	5.63
Tryall	...	3.40	...
Leogan	...	4.11	...
Irwin	...	...	...
Ironshore	...	4.42	...
Providence	...	...	...
Montego Bay (Market)	...	2.55	...
Catherine Hall	...	4.35	...
Catherine Mount	...	4.24	7.67
Fairfield	...	5.23	...
Mean		4.50	5.88

WEST CENTRAL DIVISION.

		OCTOBER.	
		1883.	Average.
		In.	In.
Linstead	St. Catherine	6.24	...
Worthy Park	...	10.51	...
Lloyds	...	...	...
Chapelton	Clarendon	...	...
Pennants	...	...	...
Whitney	...	12.88	15.40
Cave Valley	St. Ann	5.53	10.41
Hanbury	Manchester	13.60	...
Mandeville	...	...	...
Marshall's Pen	...	17.15	14.13
Derry	...	...	...
Bogue	St. Elizabeth	...	...
Barton Isles	...	12.36	...
Appleton	...	16.85	...
Maroon Town	St. James	12.11	...
Holland	St. Elizabeth	12.60	...
Y.S.	...	...	...
Ipswich	...	...	...
Kepp	...	10.67	...
Mount Charles	...	11.04	...
Mount Edgecombe	Westmoreland	10.74	...
Windsor Forest	...	...	...
Kew Park	...	7.50	...
Hazelymph	St. James	9.20	...
Chester Castle	Hanover	9.99	...
Copse	...	6.07	10.94
Burnt Ground	...	15.20	9.99
Haughton Grove	...	10.53	...
Kempshot	St. James	7.10	...
Bandon	...	6.88	...
Anchovy	...	9.03	...
Wiltshire	...	8.74	...
Eden	...	7.56	...
Round Hill	Hanover	5.88	...
Cacoen Castle	...	6.36	8.11
Sed Hall Pen	...	16.19	...
Golden Grove	...	9.41	...
Tryall	...	5.01	6.85

WEST CENTRAL *continued.*

		OCTOBER.	
		1883.	Average.
		In.	In.
Carawina	Westmoreland	...	...
Sweet River	...	9.49	...
Shrewsbury	...	14.61	...
Paradise Pen	...	...	...
Roaring River	...	...	...
Fort William	...	...	...
Mackfield	...	...	...
Mesopotamia	...	12.68	...
Cornwall	...	...	...
Windsor (Sav.-la-Mar)	...	6.93	8.42
Fontabelle	...	12.17	...
Frome	...	...	...
Belle Isle	...	...	...
Grange Hill	...	...	...
Retreat	...	7.50	...
Point	...	...	...
Kew Estate	...	...	...
Haughton Court	Hanover	5.24	...
Orange Cove	...	8.17	9.06
Prospect	...	8.77	...
Haughton Hall	...	...	...
Abingdon	...	7.04	...
Phoenix	...	...	...
Mean		9.23	10.39

SOUTHERN DIVISION.

		OCTOBER.	
		1883.	Average.
		In.	In.
Albion Hospital	St. Thomas	5.50	...
The Abbey	...	6.90	...
Halberstadt	St. Andrew	9.94	...
Hope Plantation	...	5.93	...
Constant Spring	...	...	...
Cherry Garden	...	9.33	...
King's House	...	5.78	...
Monaltrie	...	6.87	11.64
Public Works Office, Kingston	...	3.58	10.23
Palisadoes Plantation	...	...	...
Plumb Point L. H.	...	5.09	9.96
Ewing's Caymanas	St. Catherine	...	...
Spanish Town	...	3.55	...
Windsor Park	...	7.65	...
Hog Hole Pen	...	4.15	...
Headworks, R. C. C.	...	4.60	...
Cedars	...	...	...
Lodge Estate	...	...	...
Roden Pen	...	...	...
Old Harbour	...	11.06	...
Springfield	...	10.77	...
Experiment	Clarendon	...	...
The Bog	...	...	...
Greenwich	...	...	...
Yarmouth	...	...	...
Denbigh	...	...	...
Farm Plantation	Manchester	15.61	...
Great Valley	...	10.29	...
Stones Hope	...	13.62	...
Pepper	St. Elizabeth	...	...
Long Hill	...	13.68	...
Gilnock Hall	...	15.35	...
Santa Cruz	...	23.82	...
Bloonsbury	...	11.41	...
Black River	...	8.04	9.32
Hodges	...	9.41	...
Font Hill	...	...	...
Mean		5.90	10.30

COMPARATIVE TABLE.
(Based upon the "Average" Stations only.)
OCTOBER.

	1883. | Average.	
	In.	In.
North Eastern Division	9.21	9.34
Northern	4.50	5.88
West Central	9.23	10.89
Southern	5.90	10.30
The Island	7.21	8.98

The Rainfall for October was therefore a little below the average; the Northern Division had less than its average, having had more than its average in September; but the Southern had only half its average in spite of former drought. It is to be noticed, however, that the rains were excessive at Santa Cruz in the Southern Division, the drought having been very severe some months ago in that neighbourhood.

On the 11th a rumbling sound was heard at 9.5 p.m. throughout the district of St. David, resembling the sound which accompanies Earthquakes.

On the 15th at about 11 a.m. a slight shock of Earthquake was felt at Mount Sinai in St. David. On both occasions the weather was calm and clear.

At the Plumb Point Light House the upper gauge is 68 feet above the lower; these gauges registered 4.25 and 5.09 inches respectively.

ASTRONOMICAL NOTES.

ECLIPSE OF THE MOON, OCTOBER 16TH.

This Eclipse occurred early in the morning of the 16th and was well seen at the Kempshot Observatory:—

Greenwich Mean Time.

	Observed.			Nautical Almanac.		
	d.	h.	m.	d.	h.	m.
Commencement, Oct. 15	17	58.8		17	59.1	
End	"	19	49.6	19	49.5	

It will be noticed that the observed duration of the Eclipse was a little greater than the computed duration; this effect is due to the terrestrial atmosphere, which slightly enlarges the shadow cast by the Earth.

The breadth of the penumbra is equal to the apparent diameter of the Sun, but only one-fourth of that breadth was seen upon the Moon's disc; and consequently notices of the times of First and Second Contacts of the Moon's disc with the penumbra should be accompanied by a statement to this effect.

The Eclipse was of but small extent, about one-fourth of the Moon's disc being obscured, so that there were but small effects of colour; the shadow was of a uniform dark grey hue, and the darker part of the penumbra was slightly tinged with red.

RETURN OF THE COMET OF 1812.

The following notice was sent Oct. 25th to the *Tri-Weekly Gleaner*:—

"On the 20th July, 1812, a comet was discovered by Pons, which was subsequently found to be moving in an elliptic orbit with a period of 71 years. This comet has reappeared; it was discovered by Mr. Brooks on the 2nd September, and it is pursuing its known path with unerring accuracy.

The following elements of its orbit for 1812 were computed by Eneke, for 1883 by Mm. Schulhof and Bossert:—

	1812.	1883.
Perihelion passage	Sept. 15	Jan. 26, 1884
Long. of perihelion	92° 18'	93° 21'
Long. of node ...	253 1	254 6
Inclination ...	73 57	74 3
Perih. distance ...	0.7771	0.7751
Eccentricity ...	0.9545	0.9550
Period in years ...	70.68	71.48
Motion direct.		

It will be noticed that the orbit has been slightly disturbed by the planets since 1812, but to a very small extent; for if we subtract 59' due to precession from the two longitudes, we find that the perihelion and node have changed only 4' and 6' respectively."

As observed on Oct. 24th, the comet appeared in the telescope as a faint nebulous patch of light; on Nov. 2nd. the comet appeared as a circular nebula with a bright nucleus, the change having been continuous. Very soon the comet will throw out a tail in the opposite direction to the Sun, and gradually increasing in brightness become visible to the eye in December before its perihelion passage.

SUN-SPOTS AND SOLAR RADIATION.

Kempshot; October, 1883.

Mean Time.		Groups of Sun-spots.	Number of Sun-spots.	Combination Number.
Day.	Hour.			
5	19	7	30	80
7	19	8	44	95
8	19	7	65	92
9	19	7	79	96
11	20	8	97	112
14	20	7	119	110
15	22	6	77	86
16	19	6	68	83
18	19	2	36	32
19	19	3	43	44
21	19	4	33	51
23	20	4	44	55
24	19	5	52	67
29	19	8	70	108
Means		5.9	61	79

There was a particularly fine spot visible from the 17th to the 22nd when the Sun's rotation carried it out of view.

The above Combination-number gives us 10°.01 as the Solar Radiation for October.

WEATHER FORECASTS.

In accordance with the explanatory statement in the last Weather Report, Daily Forecasts were issued from the Kempshot Observatory during October, applying to the West Central Division.

In several places a strict watch upon the Weather has been maintained, and valuable descriptions of the daily weather during October have been sent me for compilation; but as yet they have not all reached me; and they will require great care in their reduction, in as much as several of my friends have apparently applied the system to their own places rather than to the neighbourhood round about them.

In this respect the Kempshot Observatory is well situated for observing the Weather: the view extends from the Dolphin Head to St. Ann's Bay, and takes in the Manchester and Darliston Mountains; and by changing the point of view, the Blue Mountains may be seen when the air is clear, standing out against the sky over the central ranges of hills. But still this view may be shut out by rain-clouds near at hand, and hence the desirability of having several other reporting stations for those experimental forecasts. Postponing the reduction of the notes made elsewhere, the following list of Forecasts were made systematically on the plan adopted Oct. 2nd and expressed according to the proposed Weather-Scale,* and may be compared with the

- *1. Dry and fine;
- 2. Fine, with perhaps a shower or two;
- 3. Fair, with perhaps average partial showers;
- 4. Moderate partial rains;
- 5. General rains.

Weather as observed at Kempshot and expressed in terms of the same scale :—

1883 -October.

Day.	Forecast.	Weather.	Day.	Forecast.	Weather.
1	3.6	4	17	2.7	4
2	3.2	3	18	3.5	4
3	3.6	4	19	3.1	4
4	3.7	3.5	20	3.6	4
5	3.0	3	21	*	...
6	3.4	3	22	4.2	5
7	3.0	3	23	4.4	4.5
8	4.0	4	24	3.5	3.5
9	3.9	4	25	3.3	3
10	3.6	3.5	26	4.1	4
11	*	...	27	†	...
12	3.7	4	28	*	...
13	*	...	29	3.8	4
14	*	...	30	2.2	2.5
15	3.7	3.5	31	2.5	2.5
16	3.2	4			

* Readings taken in Montego Bay.

† Weather unsettled : and this was the forecast telegraphed to Kingston.

Hence in 21 cases the difference did not exceed half a division of the scale, in 3 cases the difference did not exceed a whole division, and in one case only (on the 17th) the difference exceeded a whole division :—

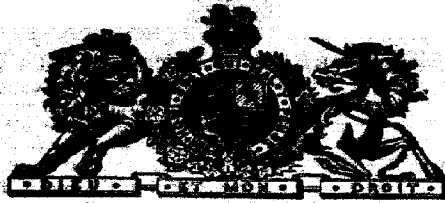
Verified	...	21
Partly verified	...	3
Not verified	...	1
Total	...	25

On the 17th there was a heavy rain in St. James, and the Weather was put down as 4, though perhaps it was drier and finer elsewhere. It is perhaps unnecessary to say that the process of Forecasting may be improved upon, though an accuracy of 84 per cent. leads us rather to consider how any general use can be made of such a system.

MAXWELL HALL.

Kempshot Observatory,

November 9th, 1883.



JAMAICA.

DECEMBER 22, 1883.

No. 35.

WEATHER REPORT

FOR THE MONTH OF

NOVEMBER, 1883.

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KINGSTON:—

	7 a.m.	3 p.m.	11 p.m.	Mean.
	<i>in.</i>	<i>in.</i>	<i>in.</i>	<i>in.</i>
Barometric pressure ...	29.976	29.899	29.975	29.950
Temperature of the air ...	72°.8	83°.2	73°.2	76°.4
Dew-point ...	68.5	73.6	69.4	70.5
Humidity ...	87	74	88	83
Maximum Temp. ...				86°.0
Minimum Temp. ...				70°.3
Range of Temp. ...				15°.7
Minimum Temp. on Grass ...				64°.7
Direction of the Wind ...				Variable.
Velocity of Wind in Miles per hour ...				2.7
Percentage of Cloud ...				44

Total Rainfall—3.67 inches.

Average Weather:—Fair with showers.

The highest temperature was 88°.8 recorded on the 6th, 10th and 11th; the lowest was 65°.0 recorded on the 26th; the extreme range was therefore 23°.8. The lowest temperature on the grass was 59°.0 recorded on the 26th.

CINCHONA PLANTATION:—

			<i>in.</i>
Barometric Pressure	7 a.m.	...	25.236
"	3 p.m.	...	25.201
Temperature of the air	7 a.m.	...	60°.2
"	3 p.m.	...	63.9
Dew-point	7 a.m.	...	55.4
"	3 p.m.	...	60.6
Maximum Temperature		...	67.7
Minimum Temperature		...	57.5
Range of Temperature		...	10.2
Direction of the Wind		...	E.
Velocity of Wind in Miles per hour		...	2.6
Temperature 6 feet under ground		...	64°.

NOTE.—The Barometric pressure is the reading of the Barometer corrected for instrumental error and reduced to 32°, that of Kingston being further reduced to the sea-level. The Thermometers are similarly exposed at the two stations; their readings have all been corrected. The following are the elevations of these stations above the sea-level:—

Kingston (Rae Town)	5 feet
Cinchona Plantation	4,850 "

At New Haven Gap (in the Blue Mountain Range, elevation about 5,600 feet) the mean maximum and minimum temperatures were 67°.2 and 52°.0 respectively.

At King's House (in the plains of Liguanea, elevation about 400 feet) the mean maximum and minimum temperatures were 88°.5 and 69°.2 respectively.

THE HEALTH OF KINGSTON was about the average, the death-rate being 28.0 per thousand. There were 11 deaths from Lung-disease, showing the slight decrease anticipated in the two last Reports; and there were 17 deaths from Infantile diseases (not otherwise specified), as in October. The Meteorological conditions indicate for December a slight decrease for Lung-disease and an increase for Infantile diseases.

THE HEALTH OF MONTEGO BAY during November was far below the average. According to Mr. S. E. Payne's monthly report to the Sanitary Board, malarial fever was prevalent in the lower parts of Union, East, and King Streets, and also in the suburbs of Jackson Town and Camerton Village. Generally speaking, the fever was worse in the upper rather than the lower parts of the town—such as Meagre Bay. The report attributes the fever to the autumnal rains after long drought, and its present abatement to the cold weather and strong winds which have now set in.

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Chepstow
Woodstock
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Newton	...	1.50	...
Tweedside	...	5.45	...
Stony Hill	...	4.43	8.65
Castleton Gardens	St. Mary
Dover	...	5.35	...
Annotto Bay	...	9.72	...
Water Valley
Quebec
Port Maria	...	15.91	...
New Ramble
Gayle	...	6.25	...
Llanrumny	...	6.81	...
Goshen	...	2.85	...
Rio Hoe	St. Ann	1.93	...
Unity Valley	...	3.80	7.59
Albion	...	2.60	10.23
Bradfield
Drax Hall
Seville	...	7.97	...
Richmond Estate	...	8.68	...
Llandovery	...	9.25	...
Means		3.70	10.04

NORTHERN DIVISION.

		NOVEMBER.	
		1883.	Average.
		In.	In.
Lillyfield	St. Ann	9.05	...
Home Castle	...	...	...
Richmond Pen	...	...	...
Colchis Pen	Trelawny	...	...
Mahogany Hall	...	1.15	4.19
Hopewell	...	2.34	7.97
Brampton Bryan	...	2.35	6.43
Bryan Castle	...	3.40	6.61
Nightingale Grove	...	2.68	...
Braco	...	...	...
Arcadia	...	...	...
Harmony Hall	...	3.87	6.46
Lancaster	...	...	...
Vale Royal	...	...	...
Hyde Hall	...	3.97	...
Hyde	...	1.78	7.52
Swanswick	...	2.61	...
Long Pond	...	3.45	...

NORTHERN DIVISION continued.

		NOVEMBER.	
		1883.	Average.
		In.	In.
Georgia	Trelawny	...	...
Steelfield	...	5.85	5.74
Etingdon	...	5.89	...
Oxford	...	5.14	...
Cambridge	...	5.02	...
Spring	...	4.45	...
Lottery	...	...	...
Pembroke	...	2.67	...
Falmouth	...	...	...
Holland Pen	...	...	...
Golden Grove	...	2.50	5.71
Fontabelle	...	1.25	...
Green Park	...	2.49	6.15
Tilston	...	2.55	5.04
Orange Valley	...	3.96	5.24
Kent	...	4.23	...
Dundee	...	2.93	7.55
Gales Valley	...	1.45	4.73
Hampden	St. James	2.34	...
Greenwood	...	3.46	...
Lima	...	...	...
Content	...	...	...
Gaillsbro'	...	0.90	...
Spring Vale	...	1.78	5.03
Latium	...	1.69	5.41
Success	...	4.82	4.96
Cinnamon Hill	...	3.51	...
Rose Hall	...	4.49	...
Running Gut	...	2.83	4.95
Tryall	...	3.65	...
Leogan	...	2.85	...
Irwin	...	...	...
Ironshore	...	5.26	...
Providence	...	4.00	...
Montego Bay (Market)	...	1.60	...
Catherine Hall	...	2.00	...
Catherine Mount	...	2.95	4.16
Fairfield	...	2.39	...
Means		2.80	5.77

WEST CENTRAL DIVISION.

		NOVEMBER.	
		1883.	Average.
		In.	In.
Linstead	St. Catherine	8.07	...
Worthy Park	...	...	...
Lloyds	...	...	...
Chapelton	Clarendon	...	...
Pennants	...	...	...
Whitney	...	6.90	6.03
Cave Valley	St. Ann	...	...
Hanbury	Manchester	7.00	...
Mandeville	...	...	...
Marshall's Pen	...	5.41	5.68
Derry	...	...	...
Bogue	St. Elizabeth	...	...
Barton Isles	...	7.79	...
Appleton	...	7.52	...
Maroon Town	St. James	2.80	...
Holland	St. Elizabeth	5.61	...
Y.S.	...	...	...
Ipswich	...	...	...
Kepp	...	9.65	...
Mount Charles	...	8.82	...
Mount Edgecombe	Westmoreland	8.24	...
Windsor Forest	...	...	...
Kew Park	...	5.37	...
Hanclymph	St. James	...	...

WEST CENTRAL continued

		NOVEMBER.	
		1883.	Average.
		In.	In.
Chester Castle	Hanover	4.61	...
Copae	...	0.82	7.61
Burnt Ground	...	2.95	5.27
Haughton Grove	...	5.57	...
Kempshot	St. James	3.22	...
Bandon	...	...	...
Anchovy	...	2.98	...
Wiltshire	...	2.44	...
Eden	...	1.68	...
Round Hill	Hanover	0.84	...
Cacoon Castle	...	1.29	5.87
Sod Hall Pen	...	3.20	...
Golden Grove	...	3.13	...
Tryall	...	0.45	3.64
Carawina	Westmoreland	...	...
Sweet River	...	4.35	...
Shrewsbury	...	4.47	...
Paradise Pen	...	5.40	...
Roaring River	...	...	...
Fort William	...	4.61	...
Mackfield	...	5.92	...
Mesopotamia	...	...	...
Cornwall	...	...	...
Windsor (Sav.-la-Mar)	...	5.15	4.52
Fontabelle	...	5.01	...
Frome	...	4.58	...
Belle Isle	...	4.71	...
Grange Hill	...	...	...
Retreat	...	...	...
Point	...	...	...
Kew Estate	...	2.90	...
Haughton Court	Hanover	2.21	...
Orange Cove	...	...	...
Prospect	...	...	...
Haughton Hall	...	...	...
Abingdon	...	4.03	...
Phoenix	...	...	...
Means		3.28	5.52

SOUTHERN DIVISION.

		NOVEMBER.	
		1883.	Average.
		In.	In.
Allion Hospital	St. Thomas	1.80	...
The Abbey	...	3.60	...
Halberstadt	St. Andrew	...	...
Hope Plantation	...	5.46	...
Constant Spring	...	...	...
Cherry Garden	...	3.98	...
King's House	...	2.74	...
Monaltrie	...	3.68	5.71
Public Works Office, Kingston	...	4.57	3.90
Palisadoes Plantation	...	4.18	3.23
Plumb Point L. H.	...	2.81	3.50
Ewing's Caymanas	St. Catherine	3.87	3.94
Spanish Town	...	5.20	...
Windsor Park	...	4.73	...
Hog Hole Pen	...	4.43	...
Headworks, R. C. C.	...	6.43	...
Cedars	...	...	...
Lodge Estate	...	...	...
Roden Pen	...	4.04	...
Old Harbour	...	4.11	...
Springfield	...	...	...
Experiment	Clarendon	...	...
The Bog	...	1.72	...
Greenwich	...	...	...
Yarmouth	...	...	...
Denbigh	...	2.40	5.31

SOUTHERN DIVISION *continued.*

		NOVEMBER.	
		1883. | Average.	
Farm Plantation	Manchester	6.34	...
Great Valley	...	5.19	...
Stones Hope	...	4.97	...
Pepper	St. Elizabeth	...	...
Long Hill	...	3.64	...
Gilnock Hall	...	...	...
Santa Cruz	...	...	...
Bloomsbury	...	9.22	...
Black River	...	6.25	5.43
Hodges	...	7.72	...
Font Hill	...	...	...
Means		3.97	4.43

COMPARATIVE TABLE.

(Based upon the "Average" Stations only.)

		NOVEMBER.	
		1883. | Average.	
		In.	In.
North Eastern Division		3.70	10.04
Northern	"	2.80	5.77
West Central	"	3.28	5.52
Southern	"	3.97	4.43
The Island		3.44	6.44

The Rainfall for November was therefore only half the average, but very unequally distributed over the different Divisions:—the Southern having nearly its average, but the North Eastern only one-third of its average Rainfall. There were rains at places in the North Eastern Division however, 16 inches having fallen at Holland and Port Maria; and it will be noticed that the small result obtained above is partly due to the want of Rainfall returns from several places.

Indeed, the Report this month has been delayed a week in vain for the want of these and other returns—from Trelawny for instance; and I would ask the contributors to assist me in getting out these Reports as soon as possible each month.

At the Plumb Point Light House the upper gauge is 68 feet above the lower; these gauges registered 1.94 and 2.81 inches respectively.

A slight shock of Earthquake was felt at the Cinchona Plantation at 8 hr. 22 min. in the morning of the 21st. The weather was fine with a light easterly wind; the 20th was dull, fine, and calm; no rain fell on either of these days.

The shock was also felt by Dr. Manners in St. David's; weather calm and clear.

From the Cinchona Plantation Mr. Morris writes me respecting the comparatively small Rainfall there during October and November:—"In spite of this diminished Rainfall however, inasmuch as the rain has fallen in light and regular showers, the seasons have been most favourable for planting operations. To replenish the springs which have been unusually low ever since the drought of 1881 we require much heavier seasons."

On the other hand Mr. C. Vickers writes from Mount Edgecombe, Bluefields:—"It is curious that whereas there has been drought in most parts of the Island during the year, the weather has been unusually rainy here from the 1st January to the present time—the lowest monthly Rainfall being 4.11 inches in February."

THE JAVA EARTHQUAKE WAVE.

"This destructive wave appears to have started on Aug. 27th from Krakatoa, or its neighbourhood, as a centre, to have dashed with terrific force upon the contiguous coasts of Java and Sumatra, to have proceeded down the Sunda Straits eastwards with a height that reached from 40 to 100 feet in the narrow throat of the pass opposite Anjer, and 17 feet at Batavia, and even to have extended to the western and eastern shores of America where it was observed on the 27th and 29th respectively." *Nature*, (vol. 29. p. 31.)

We may here assume that the wave reached the western shores of America late on the 27th, and the eastern shores early on the 29th,—the latter wave having to pass round the Cape of Good Hope.

The wave reached Mauritius on the 27th at 2 p.m.; but besides this oceanic wave, there was an aerial wave which affected the barometer at Mauritius in much the same manner as our barometer at Kingston is invariably affected by small local earthquake shocks as pointed out from time to time in these Reports.

Between 11.55 a.m. and 12.6 p.m. the barometer at Mauritius fell suddenly about eight hundredths of an inch, then rose slightly, and fell again,—producing on the whole a depression of about five hundredths between 12 noon and 3 p.m.

Again the magnets at Mauritius were greatly disturbed from 9 a.m. to 12.15 p.m. the same day:—"I will at present," Mr. Meldrum concludes, "make no attempt to explain the phenomena in question. Magnetic disturbances, properly so-called, are not produced by earthquakes, but are generally ascribed, in a measure at least, to cosmical causes. The disturbances of the magnets on this occasion, however, may have been mechanical effects of earth-waves, although no permanent change of level took place. The difficulty is to refer all the phenomena to the same cause." *Nature*, (vol. 28. p. 627.)

Besides the note above connecting the barometer with seismic disturbance, I would also call the attention of Mr. Meldrum to the fact that the magnets at the Havana Observatory are affected by passing Cyclones.

We notice that the barometric disturbance followed the magnetic, and the oceanic followed the barometric; and without discussing their probable velocities, we may assume that the barometric disturbance would reach Jamaica on the evening of the 27th, though it would probably be far too feeble to be noticed. However, the fact is that the barometer at Kingston fell considerably about 3 p.m. on the 27th, according to the following table:—

BAROMETER.		
Kingston, Jamaica.	Cor. and reduced to 32°	Further cor. for Diurnal Range.
1883.	in.	in.
Aug. 26th 3 p.m.	29.934	29.972
" 11 p.m.	30.000	.975
27th 7 a.m.	29.996	.982
" 3 p.m.	29.966	.944
" 11 p.m.	30.008	.983
28th 7 a.m.	30.008	.984
" 3 p.m.	29.937	29.975

From the manner the Kingston barometer was affected by the Cyclone on August 22nd, 1881, I inferred at the time that the news reached us from the Island of St. Thomas with immense velocity; and by allowing 9 hours for the difference of longitude, it is possible that the atmospheric wave or impulse travelled from Mauritius to Jamaica in ten hours and a half, although the velocity would somewhat exceed that of sound.

The vapours thrown into the air by the volcanic eruptions on Aug. 26th which preceded the Earthquake Wave, produced curious atmospheric effects in India, Ceylon, Mauritius, and elsewhere—even in the West Indies, according to a correspondent to *Nature*, (vol. 28. p. 612) : the Sun appeared *green* during September, and the sky assumed various unusual colours.

Referring to my note-book I find that on Sept. 16th I remarked an unusual copper-colour in the sky near the Sun ; it was afterwards very strongly marked at times, as though there was a quantity of smoke in the air ; and it was best seen at mid-day when the Sun was behind a compact mass of cloud, the rest of the sky being clear. The spectrum of the atmospheric aqueous-vapour remained unchanged during this appearance,—which puzzled me not a little at the time in connection with the daily weather forecasts which were telegraphed to Kingston. This copper-colour, or pinkish hue, is still to be seen at mid-day !

ASTRONOMICAL NOTES.

THE COMET OF 1812 referred to in the last Report has continually increased in brilliancy ; on Nov. 18th there were indications of the formation of a tail ; on Nov. 26th the tail was 18' in length and 30° from the north towards the east, that is to say, the tail was projected away from the Sun ; and on Dec. 2nd the tail was at least 1° in length. During the coming absence of moon-light the Comet will probably be visible in the evenings a little above the north-western horizon.

SUN-SPOTS AND SOLAR RADIATION.

Kempshot ; November, 1883.

Mean Time.		Groups of Sun-spots.	Number of Sun-spots.	Combination Number.
Day.	Hour.			
1	22	8	73	104
13	21	7	77	96
15	22	7	84	98
18	1	7	79	96
25	21	4	22	47
26	19	4	22	47
27	20	4	19	46
29	19	5	24	58
Means		5.7	50	74

The mean Combination-number 74 gives 9°.94 as the mean Solar Radiation for November.

WEATHER FORECASTS.

(Issued last October.)

In the last Report it was stated that a strict watch upon the Weather had been maintained during October at several places for the sake of comparison with the daily telegraphic Forecasts, but that the returns had not

all reached me. They are now given in the following table.—

October. 1883.

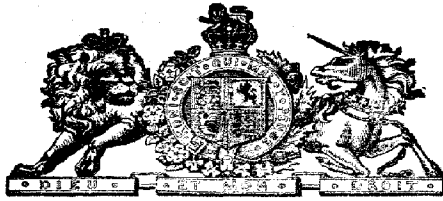
Day.	Cuchona Plantation.	Kingston.	Albion Pen.	Marshall's Pen.	Appleton Estate.	Kempshot Observatory.	Chester Castle Estate.	Frome Estate.	Mean.
1	3	4	4	3	3	4	3	1	3.1
2	2	4	2	1	3	3	2	1	2.2
3	2	3	2	3	3	4	4	1	2.8
4	2	3	1	3	3	3.5	3	3	2.7
5	1	4	1	3	5	4	3	3	2.8
6	1	3	1	3	3	3	2	1	2.1
7	2	4	4	2	4	3	3	2	3.0
8	2	3	1	3	4	4	2	3	2.8
9	4	4	2	3	4	4	3	3	3.4
10	4	4	5	4	3.5	3.5	3	2	3.6
11	2	2	2	4	2	...	3	2	2.6
12	2	3	1	3	3	4	4	5	3.1
13	2	3	2	3	2	...	4	1	2.4
14	1	4	1	3	4	...	3	1	2.4
15	1	4	1	2	4	3.5	3	5	2.9
16	2	4	3	3	4	4	4.5	5	3.7
17	2	3	4	3	4	4	4	3	3.4
18	2	3	2	4	3	4	4.5	1	2.9
19	1	3	2	3	4	4	4	5	3.2
20	4	3	4	4	3	4	5	1	3.5
21	2	4	3	3	4	...	4	4	3.4
22	3	4.5	3	5	5	5	4	5	4.3
23	1	4	2	3	4.5	4.5	3	5	3.4
24	1	3.5	1	2	4	3.5	3	3	2.6
25	3	3	1	1	4	3	3	1	2.4
26	5	3.5	3	4	4	4	3	3	3.7
27	4	5	1	3	3	...	3	5	3.4
28	4	4	3	3.5	4	...	3	5	3.8
29	2	3	2	4	2	4	3	1	2.6
30	1	2	1	2	2	2.5	3	2	1.9
31	1	2	1	1	2	2.5	4	2	1.9

As previously stated, it appears that at some of these places the weather given does not apply to the surrounding neighbourhood, as was intended, so that many more stations would be required to give accurate results. Again, number (1) of the Weather-Scale could hardly occur during the October seasons : it occurs often enough during February and March, when the very air as well as the weather is "dry" ; and the frequent occurrence of (1) in the Table has lowered the means very considerably. However, Marshall's Pen, Appleton, Kempshot, and Chester Castle all go together ; and it was to this part of the Island the Forecasts were stated to apply more particularly.

The agreement of the weather near Kingston with the weather near Kempshot and Appleton is very remarkable ; and it shows that by careful and continued study, aided by daily telegrams from three or four places, daily Forecasts could be issued along the lines of telegraph with a high degree of accuracy.

MAXWELL HALL.

Kempshot Observatory,
December 15th, 1883.



JAMAICA.

JANUARY 19, 1884.

No. 36.

WEATHER REPORT

FOR THE MONTH OF

DECEMBER, 1883.

Published by Authority.

JAMAICA:
GOVERNMENT PRINTING AND STATIONERY ESTABLISHMENT, 79 DUKE STREET, KINGSTON

1884.

METEOROLOGICAL RESULTS FOR DECEMBER, 1883.

KINGSTON:—

	7 a.m.	3 p.m.	11 p.m.	Mean.
	in.	in.	in.	in.
Barometric pressure ...	30.637	29.956	30.037	30.010
Temperature of the air ...	70°·6	83°·9	71°·8	75°·4
Dew-point ...	65·7	71·2	66·8	67·9
Humidity ...	85	60	84	78
Maximum Temp. ...	...	...	...	85°·6
Minimum Temp. ...	...	...	...	68·3
Range of Temp. ...	...	...	...	17·3
Minimum Temp. on Grass ...	...	...	...	61·8
Direction of the Wind ...	...	...	...	S.S.E.
Velocity of the Wind in Miles per hour ...	...	...	...	2·8
Percentage of Cloud ...	...	...	...	47

Total Rainfall—0·17 inches.

Average Weather:—Fair and dry—not much air moving.

The highest temperature was 89°·8 recorded on the 19th; the lowest was 63°·6 on the 10th; the extreme range was therefore 26°·2. The lowest temperature on the grass was 56°·3 recorded on the 10th.

CINCHONA PLANTATION:—

	7 a.m.	3 p.m.	11 p.m.	Mean.
	in.	in.	in.	in.
Barometric Pressure	25·268
Temperature of the air	25·241
Dew-point	57°·7
Maximum Temperature	63·4
Minimum Temperature	54·2
Range of Temperature	58·1
Direction of the Wind	66·1
Velocity of Wind in Miles per hour	55·2
Temperature 6 feet under ground	10·9

NOTE.—The Barometric pressure is the reading of the Barometer corrected for instrumental error and reduced to 32°, that of Kingston being further reduced to the sea-level. The Thermometers are similarly exposed at the two stations; their readings have all been corrected. The following are the elevations of these stations above the sea-level:—

Kingston (Rae Town)	5 feet
Cinchona Plantation	4,850 "

At New Haven Gap (in the Blue Mountain Range, elevation about 5,600 feet) the mean maximum and minimum temperatures were 65°·9 and 51°·3 respectively.

At King's House (in the plains of Liguanea, elevation about 400 feet) the mean maximum and minimum temperatures were 85°·6 and 63°·6 respectively.

THE HEALTH OF KINGSTON was about the average, the death-rate being 30·8 per thousand. There were 20 deaths from Lung-disease, 18 from Infantile diseases and 4 from different kinds of Fever.

The large number of deaths from Lung-disease attracts our attention, especially as the Meteorological conditions were favourable*; the number of deaths from Infantile diseases (not otherwise specified) was anticipated, and an increase may be expected for January.

THE HEALTH OF MONTEGO BAY during December was good, according to Mr. S. E. Payne's monthly report to the Sanitary Board; and there were only a few cases of Fever at Jackson Town and Camerton Village.

* It has been stated that many of the labourers who return to Jamaica from Colon suffer from some form of Lung-disease: I would be glad of information on this point.

M. H.

THE RAINFALL FOR DECEMBER, 1883.

The first columns contain all the Rainfall returns sent in for publication up to the date of this report; the second columns contain the corresponding average Rainfall according to the Tables published in October 1883, as Nos. 31 and 33 of the present series of reports. In obtaining the mean Rainfall for the month, from the numbers in the first columns, only those stations are considered for which the average Rainfall has been given in the second columns, so that the results of these two columns are directly comparable. These results are more clearly shown in the Comparative Table at the end of these Rainfall returns:—

NORTH-EASTERN DIVISION.

		DECEMBER.	
		1883.	Average.
		In.	In.
Morant Point I. H.	St. Thomas	...	...
Hordley	...	4·00	...
Holland	...	4·78	...
Leith Hall	...	...	...
Potosi	...	...	...
Boston	Portland	...	...
Port Antonio	...	5·42	...
Spring Garden	...	...	...
Chepstow	...	...	...
Woodstock	...	...	...
Cinchona Plantation	St. Andrew	4·50	13·83
New Haven Gap	...	21·71	...
Newton	...	...	...
Tweedside	...	...	...
Stony Hill	...	1·65	8·71
Castleton Gardens	St. Mary	11·13	13·17
Dover	...	10·25	...
Annatto Bay	...	8·68	...
Water Valley	...	7·34	10·25
Quebec	...	...	...
Port Maria	...	...	...
New Ramble	...	8·13	10·58
Gayle	...	10·70	...
Llanrumny	...	5·24	...
Goshen	...	8·99	...
Rio Hoe	St. Ann	5·65	...
Unity Valley	...	3·87	10·74
Albion	...	5·76	8·07
Bradfield	...	7·28	10·91
Drax Hall	...	5·66	8·57
Seville	...	4·41	...
Richmond Estate	...	2·80	...
Llandoverly	...	4·42	...
Means		6·15	9·98

NORTHERN DIVISION.

		DECEMBER.	
		1883.	Average.
		In.	In.
Lillyfield	St. Ann	14·78	...
Horne Castle	...	6·69	...
Richmond Pen	...	1·76	...
Polchis Pen	Trelawny	0·46	...
Mahogany Hall	...	2·48	3·76
Hopewell	...	4·99	9·75
Brampton Bryan	...	4·12	7·24
Bryan Castle	...	2·80	7·61
Nightingale Grove	...	4·68	...
Braco	...	3·28	7·20
Arendia	...	3·86	...
Harmony Hall	...	2·43	7·21
Lancaster	...	2·98	7·57
Vale Royal	...	4·71	9·29
Hyde Hall	...	3·79	...
Hyde	...	3·64	8·08
Swanswick	...	4·83	...

NORTHERN DIVISION *continued.*

		DECEMBER.	
		1883.	Average.
		IN.	IN.
Long Pond	...	4.02	...
Georgia	...	...	...
Steelfield	...	4.01	7.99
Etingdon	...	3.74	...
Oxford	...	3.28	...
Cambridge	...	3.82	...
Spring	...	2.24	...
Lottery	...	2.35	5.83
Pembroke	...	3.43	...
Falmouth	Trelawny	...	...
Holland Pen	...	3.62	...
Golden Grove	...	2.20	5.33
Fontabelle	...	2.35	...
Green Park	...	...	...
Tilston	...	2.16	5.57
Orange Valley	...	2.46	6.99
Kent	...	2.82	...
Dundee	...	3.21	6.46
Gale's Valley	...	2.30	5.60
Hampden	St. James	3.45	...
Greenwood	...	2.11	...
Lima	...	...	...
Content	...	...	...
Gullsbro'	...	1.70	...
Spring Vale	...	...	...
Latium	...	4.76	5.98
Success	...	...	3.86
Cinnamon Hill	...	2.88	...
Rose Hall	...	3.31	...
Running Gut	...	...	...
Tryall	...	2.55	...
Leogan	...	5.89	...
Irwin	...	...	...
Ironshore	...	2.14	...
Providence	...	2.27	...
Montego Bay (Market)	...	2.64	...
Catherine Hall	...	2.80	...
Catherine Mount	...	2.42	6.74
Fairfield	...	2.04	...
Means		3.19	6.85

WEST CENTRAL DIVISION, *continued.*

		DECEMBER.	
		1883.	Average.
		IN.	IN.
Chester Castle	Hanover	0.72	...
Copae	...	0.28	4.67
Barnet Ground	...	1.25	4.33
Haughton Grove	...	0.61	...
Kempshot	St. James	3.56	...
Bandon	...	1.61	...
Anchovy	...	1.24	...
Wiltshire	...	1.78	...
Eden	...	1.79	...
Round Hill	Hanover	1.90	...
Cacoon Castle	...	3.22	6.76
Sod Hall Pen	...	1.30	...
Golden Grove	...	1.37	...
Tryall	...	1.19	2.03
Carawina	Westmoreland	...	...
Sweet River	...	3.18	...
Shrewsbury	...	...	...
Paradise Pen	...	2.10	...
Roaring River	...	...	...
Fort William	...	0.90	...
Mackfield	...	1.64	...
Mesopotamia	...	...	...
Cornwall	...	...	...
Windsor (Sav.-la-Mar)	...	3.28	2.27
Fontabelle	...	0.95	...
Frome	...	1.28	...
Belle Isle	...	1.07	...
Grange Hill	...	...	...
Retreat	...	1.18	...
Point	...	...	...
Kew Estate	...	2.05	...
Haughton Court	Hanover	0.95	...
Orange Cove	...	1.37	4.06
Prospect	...	...	...
Haughton Hall	...	...	...
Abingdon	...	1.98	...
Phoenix	...	...	...
Means		1.49	3.72

SOUTHERN DIVISION.

		DECEMBER.	
		1883.	Average.
		IN.	IN.
Linstead	St. Catherine	1.08	...
Worthy Park	...	...	...
Lloyds	...	...	...
Chapelton	Clarendon	...	...
Pennants	...	...	...
Whitney	...	1.45	3.31
Cave Valley	St. Ann	0.60	2.75
Hanbury	Manchester	3.60	...
Mandeville	...	...	...
Marshall's Pen	...	1.41	3.30
Derry	...	2.10	...
Bogue	St. Elizabeth	...	...
Barton Isles	...	...	...
Appleton	...	2.62	...
Maroon Town	St. James	1.39	...
Holland	St. Elizabeth	...	...
Y.S.	...	...	...
Ipswich	...	...	...
Kepp	...	1.26	...
Mount Charles	...	1.07	...
Mount Edgecombe	Westmoreland	2.00	...
Windsor Forest	...	3.07	...
Kew Park	...	0.98	...
Hazelymph	St. James	...	...
Albion Hospital	St. Thomas	0.00	...
Free Abbey	...	0.53	...
Halberstadt	St. Andrew	0.66	...
Hope Plantation	...	0.49	...
Constant Spring	...	...	...
Cherry Garden	...	1.03	...
King's House	...	0.55	...
Momallrie	...	0.42	2.37
Public Works Office, Kingston	...	0.40	2.33
Palisades Plantation	...	...	...
Plumb Point L. H.	...	...	...
Ewing's Caymanas	St. Catherine	...	...
Spanish Town	...	0.24	...
Windsor Park	...	...	...
Hog Hole Pen	...	1.08	...
Headworks, R. C. C.	...	2.62	...
Cedars	...	...	...
Lodge Estate	...	...	...
Roden Pen	...	...	...
Old Harbour	...	0.63	...
Springfield	...	...	...
Experiment	Clarendon	...	...
The Bog	...	0.09	...
Greenwich	...	...	...
Yarmouth	...	...	...
Denbigh	...	0.90	2.00

SOUTHERN DIVISION, *continued.*

		DECEMBER.	
		1883.	Average.
Farm Plantation	Manchester	0.69	...
Great Valley	...	0.03	...
Stone's Hope	...	0.61	...
Pepper	St. Elizabeth	...	...
Long Hill	...	...	...
Gilnock Hall	...	2.55	...
Santa Cruz	...	...	...
Bloomsbury	...	2.21	...
Black River	...	2.36	2.29
Hodges	...	2.62	...
Font Hill	...	...	...
Means		0.80	2.25

COMPARATIVE TABLE.

(Based upon the "Average" Stations only.)

		DECEMBER.	
		1883.	Average.
		In.	In.
North Eastern Division		6.15	9.98
Northern	"	3.19	6.85
West Central	"	1.49	3.72
Southern	"	0.80	2.25
The Island		2.91	5.70

The Rainfall for December was therefore only half the average, as for the preceding month of November:—the West Central and Southern Divisions having proportionately less during December than the North Eastern and Northern Divisions.

No rain fell at a few places in the Southern Division; but 14 inches fell at Lillyfield in the Northern, and nearly 22 inches fell at New Haven Gap in the North Eastern Division! The latter Rainfall is the more remarkable as only four inches-and-a-half were registered at the Cinchona Plantation. The following is the register for New Haven Gap for December:—

	Inches.
1.....	0.85
6.....	10.19
12.....	3.15
13.....	1.32
15.....	4.67
17.....	0.06
22.....	1.47
' Total	21.71

At the Plumb Point Light House the upper gauge is 68 feet above the lower; these gauges registered and inches respectively.

ASTRONOMICAL NOTES.

THE COMET OF 1812 became easily visible to the eye about the middle of December as a hazy star of the fourth or fifth magnitude; but as an opera or field-glass was required to show the tail, the Comet has not attracted much attention.

It now appears as a hazy star of the third magnitude, and it may easily be seen about 7 o'clock in the evening half-way between the Zenith and the Western Horizon,

and a little to the left of the well-known square of the constellation *Pegasus*. If the Comet were to throw out a tail at all comparable with its bright head and nucleus, it would form a magnificent object in our western evening skies.

SUN-SPOTS AND SOLAR RADIATION.

Kempshot; December, 1883.

Mean Time.		Groups of Sun-spots.	Number of Sun-spots.	Combination Number.
Day.	Hour.			
1	20	4	13	44
2	21	3	6	32
13	22	6	47	76
14	19	6	41	74
15	20	5	35	62
18	23	6	44	75
21	22	6	59	90
23	21	6	90	92
27	21	5	64	71
Means		5.2	48	68

The mean Combination-number 68 gives $9^{\circ}.85$ as the mean Solar Radiation for December.

NEPTUNE.

But little is known of this, the farthest planet from the Sun:—it appears as a star of the eighth magnitude, and it is attended by a satellite.

On November 27th some observations were commenced, which were continued during December, and which indicate that (1) the planet has a delicate bluish colour, and (2) that its brightness is subject to periodical variations probably due to the rotation of the planet on its axis in 7 hrs. 55 min 12 secs.

With regard to (1), we have the following remarkable prismatic sequence of colour of the planets proceeding from the Earth outwards:—Mars, reddish; Jupiter, a delicate orange; Saturn, greenish yellow; Uranus, light green; and Neptune, slightly blue.

With regard to (2), on November 27th three small stars were seen in the field of view,—Neptune, and two stars between the eighth and ninth magnitude which we shall call *a* and *b*. Their configuration was noticed in order to identify the planet next night by its motion. On November 28th the stars were observed again, when it was noticed that the brighter and following star had moved so little that its identity with the planet was considered unsatisfactory, and an accurate measure was taken. Repeating the measure on November 29th the identity of the planet was clearly proved; but it was noticed with surprise that Neptune had diminished in brightness and was then no brighter than the two stars *a* and *b*, which had not changed their comparative brightness. The Right Ascension of these two stars was 8 hrs. 8 min. 39 sec. referred to the equinox at date, and their North Declinations were $15^{\circ} 49' 30''$ and $15^{\circ} 52' 28''$ respectively—assuming that the tabular position of Neptune was correct.

The following night was cloudy however; and it was not until the night of December 2nd that the fact of variation was clearly proved.

Neptune was subsequently observed whenever the weather permitted, and his brightness compared with the star *a* in the same field of view. But stormy weather prevailed, the series of observations was continually broken, and certain photometric appliances could not be used; and so it was not until December 15th that the period of variation was determined.

But that night the brightness of Neptune remained steady; so again on December 16th and 18th; that is to say, the variation had suddenly ceased.

A copy of all the observations made has been sent to the R. Astronomical Society; they were combined so as to give the Epochs of Maximum and Minimum brilliancy; and then the corresponding Epochs were com-

puted by assuming a Period of 7 hrs. 55 m. 12 sec. and by taking Nov. 29 d. 6.9 hrs. as the first epoch of minimum, or Dec. 2 d. 10.1 hrs. as the first epoch of maximum. Giving preference to the latter, as Kempshot is 5 hrs. 11 min. west of Greenwich, we have as the Maximum Epoch for future reference.

Dec. 2 d. 15.3 hrs. Greenwich mean time.

The extent of the variation in brightness was nearly one magnitude.

Respecting the cause of this variation, the planet may be assumed to have dark belts on its surface similar to the belts of Jupiter and Saturn^{*}; should these belts break up so as to make one hemisphere darker than the other, the effect of axial rotation would be to produce variations in brightness above and below the mean, as

observed: and then the period of variation would simply be the period of axial rotation.

Since the night of December 18th Neptune has only been twice observed—on December 27th and January 8th when the planet was compared with a star ϵ of about the eighth magnitude whose position referred to the Equinox, &c., at the latter date was

R. A. 3 hrs. 5 min. 28 sec.

N. Decl. $15^{\circ} 43' 42''$

assuming as before that the tabular position of Neptune is correct.

Although no variation of Neptune was noticed during either night, yet Neptune was undoubtedly brighter on January 8th than on December 27th, and the planet should be carefully watched for the future.

MAXWELL HALL.

* And even Uranus, according to recent observations at Washington.

Kempshot Observatory,
January 14th, 1884.